

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 July 2006 (27.07.2006)

PCT

(10) International Publication Number
WO 2006/077731 A1

(51) International Patent Classification:

B01J 23/652 (2006.01) **C07C 67/04** (2006.01)
B01J 27/188 (2006.01) **B01J 37/16** (2006.01)
B01J 27/199 (2006.01) **B01J 27/057** (2006.01)
B01J 37/02 (2006.01)

(21) International Application Number:

PCT/JP2005/024009

(22) International Filing Date:

21 December 2005 (21.12.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2005-010229 18 January 2005 (18.01.2005) JP
60/646,645 26 January 2005 (26.01.2005) US

(71) Applicant (*for all designated States except US*): **SHOWA DENKO K.K.** [JP/JP]; 13-9, Shibadaimon 1-chome, Minato-ku, Tokyo, 1058518 (JP).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **MIYAJI, Atsuyuki** [JP/JP]; c/o OITA PLANT, PETROCHEMICALS SECTOR, SHOWA DENKO K.K., 2, Oaza Nakanosu, Oita-shi, Oita, 8700189 (JP). **SAIHATA, Meiko** [JP/JP]; c/o OITA PLANT, PETROCHEMICALS SECTOR, SHOWA DENKO K.K., 2, Oaza Nakanosu, Oita-shi, Oita, 8700189 (JP).

(74) Agents: **AOKI, Atsushi** et al.; A. AOKI, ISHIDA & ASSOCIATES, Toranomom 37 Mori Bldg., 5-1, Toranomom 3-chome, Minato-ku, Tokyo, 1058423 (JP).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PRODUCTION AND USE OF SUPPORTED CATALYSTS

(57) Abstract: Supported catalysts which allow shortening of the production steps for supported catalysts useful for production of lower aliphatic carboxylic acids from lower olefins and oxygen, and which compared to supported catalysts of the prior art, can inhibit generation of carbon dioxide (CO₂) gas by-product during the production of lower aliphatic carboxylic acids. A compound containing at least one element selected from Group 8, 9 and 10 elements of the Periodic Table is loaded on a carrier and then, before reduction treatment of the compound, it is subjected to alkali treatment with an alkaline substance, and a compound containing at least one element selected from gallium, indium, thallium, germanium, tin, lead, phosphorus, arsenic, antimony, bismuth, sulfur, selenium, tellurium and polonium is loaded.

WO 2006/077731 A1